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BRILL MAGAZINE

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Railway Buying

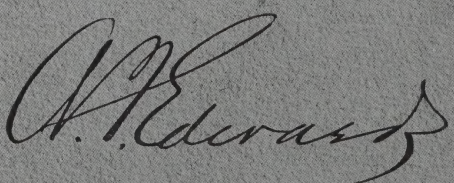
Knowledge of materials and markets, however profound, will not of itself fit a man to be head of the purchasing department of the modern electric railway.

This is a big position—one of the most important in a railway organization—and like all big positions, it requires a big man; a man who possesses qualities that are not generally apparent on the outside.

Knowing where to buy is important. Knowing when to buy is more important.

This last requires constant study and broad experience. Study of politics and finance not only as they affect the individual railway, but as they affect the entire country.

The man who combines the knowledge gained by this study with initiative, unflagging energy, conservative judgment, the ability to read and handle men and, of course, the absolute integrity that is inherent in such a character, possesses the attributes of a railway buyer.



VICE-PRESIDENT, IN CHARGE OF PURCHASES
DETROIT UNITED RAILWAY

Volume Seven

Brill Magazine

Number Eleven

November 15, 1913

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Allen F. Edwards

ALLEN F. EDWARDS, vice-president, in charge of purchases of the Detroit United Railway, and an officer and director of many of the Detroit United Lines, was born in Oglethorpe County, Ga., in 1876. He received his early education in the public schools of Memphis, Tenn., and later at a private school at Charlottesville, Va., and at Columbia University, New York City. His first railway position was that of cashier of the Yonkers Railroad Company, Yonkers, N. Y., with which company he became connected in 1897. After serving also in the mechanical and track departments and later as superintendent in charge of operation, he was, after the acquirement of the Yonkers Railroad by the Union Railway of New York City, made general superintendent. In 1899 he went to Petersburg, Va., displacing the horse car lines of that city with an electric railway; acting as general manager of the railway, lighting and water power companies. In 1901 he came to Detroit as general manager of the Toledo & Monroe Railway, then in course of construction from Toledo to Detroit. During the same year he was made general manager of the Detroit & Toledo Shore Line Railroad, then being built between the same cities by the Everett-Moore Syndicate. A year later Mr. Edwards was made receiver of the Detroit & Toledo Shore Line Railroad, and completed the construction of that property to Detroit, when it was sold to the Grand Trunk and Clover Leaf Railroads. In 1904 he became purchasing agent of the Detroit United Railway and has been identified with that property ever since, he being recently elected by the board to the office of vice-president, in charge of purchases. Mr. Edwards is a member of the Alpha Delta Phi Fraternity and a number of Detroit clubs and commercial and civic organizations. He is also a director of the Union Trust Company of Detroit.

Conditions Which Govern the Type of Car for City Service

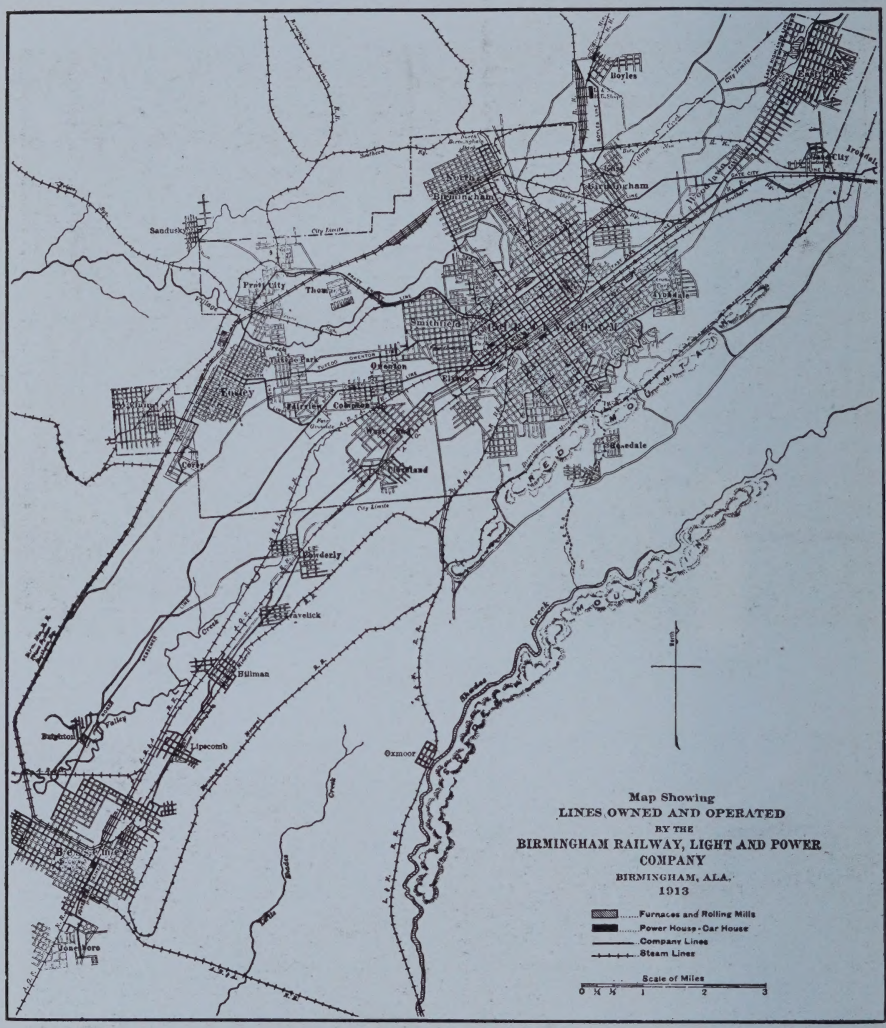
Birmingham, Alabama

KNOWN at home and abroad as "The Steel and Iron City of the South" and also as "The City With a Payroll of a Million a Week," Birmingham, Alabama, is beyond all question one of the most richly endowed industrial centers of the United States. It is the county seat of Jefferson County, one of the wealthiest and most populous of the State, and has had a most remarkable growth in population. The somewhat hackneyed expression "growing by leaps and bounds," best describes Birmingham's increase in industrial importance and population, for this has occurred only during the past few years and is due, more than anything else, to the development of the enormous natural resources of the adjacent territory. The 1910 Census gave this Southern metropolis first place, in point of growth, among American cities of over 100,000 inhabitants. At that time the population of 132,685 represented an increase of 245 per cent., which, it must be admitted, is a very remarkable showing. The present population is reliably estimated at about 170,000.

In addition to being magnificently endowed by nature with a remarkable combination of coal, iron, and limestone deposits, which lie almost together and in apparently unlimited quantities, Birmingham is one of the most important railroad points in the South and the principal manufacturing center of the State. Numerous large industrial enterprises are located within and just outside the city limits. These include railroad repair shops, car wheel works, cottonseed oil mills, furniture factories, cotton goods and yarn mills and, of course, iron and steel mills. As well as these, the city carries on a large trade in raw cotton and is the location of important lumber interests.

It would be indeed difficult to find a more beautiful location than that of Birmingham. Situated 96 miles northwest of Montgomery, the capital of the State, the city lies in a valley enclosed by mountain ridges, which extend principally to the east and west. The residential districts, with their many handsome homes, are located on these highlands, from which can be had an unsurpassed view of the developments and activities in the valley below. The streets are wide, as a rule, and are well laid out for electric railway service. There are 16 parks of varying extent, the principal ones being East Lake, Avondale and Capitol.

BIRMINGHAM TRAFFIC CONDITIONS AND CARS. The "Five Points." Residence district shown in the distance contains many beautiful homes



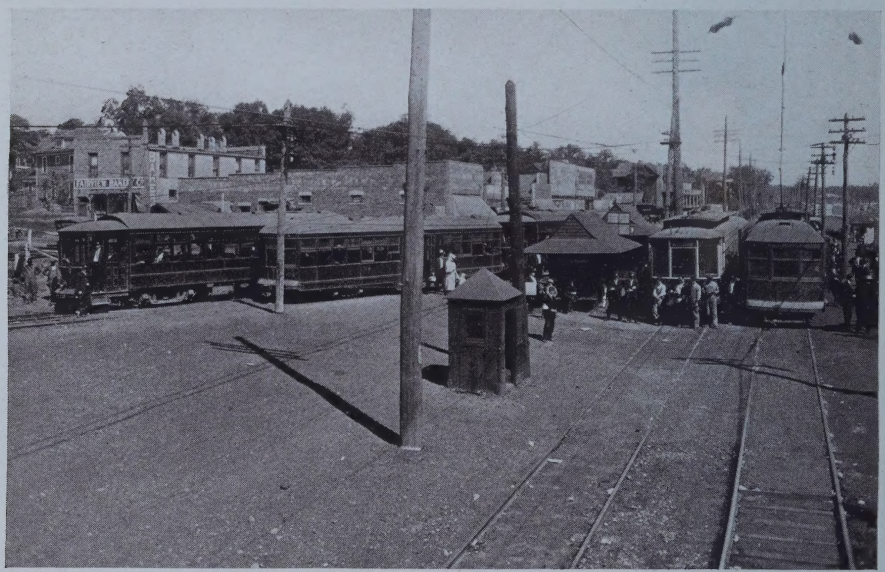
BIRMINGHAM TRAFFIC CONDITIONS AND CARS. In addition to its city lines, the company operates an extensive suburban system, as shown on the map

Owing to the necessity of providing for its almost unparalleled growth, the city has found it necessary to extend its boundaries at frequent intervals during the past few years. In this way many localities, which had previously been regarded as unavailable for the purpose, have been opened up by real estate promoters and various civic organizations and developed into highly desirable manufacturing and residential districts. With this steady expansion of the city has come a correspondingly steady growth on the part of the Birmingham Railway, Light and Power Company, which owns and

BIRMINGHAM TRAFFIC CONDITIONS AND CARS. View toward the east at the intersection of Third Avenue and 19th Street, in the Delivery District

BIRMINGHAM TRAFFIC CONDITIONS AND CARS. Second Avenue looking east from 19th Street. One of Birmingham's busiest corners

operates practically the entire street railway, electric light and power, gas and steam heat business in the city, together with numerous lines covering the municipal district and reaching out into various parts of the surrounding country. A very good idea of the railway's growth may be obtained from the company's records, which show a total of 46,000,782 passengers carried during 1912, as compared to 16,428,374 during 1902.



BIRMINGHAM TRAFFIC CONDITIONS AND CARS. Fairview, location of State Fair Grounds. South Ensley car at left, branching off from North Bessemer line

Birmingham, therefore, with its expanded city limits, has become a typical city of suburbs, which are at distances ranging from five to ten miles from the City Hall. In consequence of this, the railway has established numerous suburban lines, practically all of which have a considerable density of population between termini to draw from. With this condition the problem of adequate car service became serious, and was finally solved by the construction of some seventy-odd trail cars. During the rush hours on the suburban lines, one of these trailers is coupled to each motor car, thus allowing seating accommodations for about 100 passengers on every train, with room for approximately as many more standing passengers. The trailers are operated by one man, and their introduction into service was regarded as a novel experiment for a Southern city. It has proven a very fortunate step, however, as it enables the railway to move, in a proper and convenient manner, a large part of the population to the suburbs, where land values are not so high as in the city and where the cost of living, with a consider-

BIRMINGHAM TRAFFIC CONDITIONS AND CARS. The central traffic point at Bessemer, 19th Street and Second Avenue

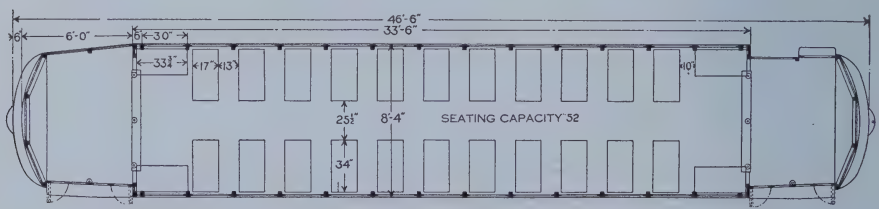
BIRMINGHAM TRAFFIC CONDITIONS AND CARS. Ensley, a suburb of Birmingham. Cars leaving for Pratt City, Fairfield and Birmingham

BIRMINGHAM TRAFFIC CONDITIONS AND CARS. The cars are constructed with semi-steel frames and are arranged for one-way operation

able degree of comfort, is not too great for the wage-earner. The trailers have also been of great assistance in the proper handling of occasional peaks, such as base-ball crowds and the large number of visitors who every year attend the Alabama State Fair at Fair-view, on the company's lines. With the exception of 17, which are of the open type, all of the trail cars are of the closed, stepless, center-entrance type, with trans-verse seats.

Reduced to single-track basis, the Birmingham Railway, Light and Power Company has a trackage of approximately 150 miles. Over this, during the morning and even-ing rush hours, about 200 cars are operated. About 10 per cent. of these are single-truck cars, which are used on the short city lines. All of the cars make a loop in what is known locally as the delivery district, comprising an area about four blocks square. The most con-gested points of this district are shown in the illustrations which accompany this article.

Being a strictly "South of the Mason and Dixon Line" city, Birmingham has always favored the "Jim Crow" law; in fact, the city is perhaps somewhat more in-sistent on this question than is the average town in its part of the country. Many of the city cars have two compartments with sepa-rate entrances, thus effecting a complete segregation of the two races. The space for the negro is



BIRMINGHAM TRAFFIC CONDITIONS AND CARS. Track to side sill, 32 in.; floor to headlining, 7 ft. 9 in. Track to step, 18 in.; step to platform, 12 in.; platform to floor, 6 in. Weight of body, less electrical equipment, 19,975 lbs.

in the front of the car, with entrance from the platform at that end. Both platforms on the city cars are provided with high, wire-mesh, platform gates operated by the motorman and conductor. Considerable delay resulted when these gates were first installed, but this has been gradually overcome as the car crews became more efficient in handling them. The company has found the gates of considerable value in the prevention of accidents.

BIRMINGHAM TRAFFIC CONDITIONS AND CARS. Signs attached to the seat backs indicate the part of the car intended for negro passengers

Not all of the cars are equipped in this manner, however, nor have all of them two compartments, as will be seen by the accompanying engraving of one of the South Ensley Line cars. This, it will be noted, has both white and colored passengers in one compartment, although certain seats in front are set apart for the use of negroes. This car is of semi-steel construction and is arranged for one-way operation. Mounted on double trucks, the car has a length over corner posts of 33 ft. 10½ in., with platforms 5 ft. 8 in. in length. These have double, two-leaf folding doors, which operate in conjunction with folding steps. The roof is of the arch type, but is separate from and rises above the hoods. Inside the car is finished in natural oak with seats upholstered in rattan. There are 22 transverse seats

and four longitudinal corner seats, giving a seating capacity of 52. The transverse seats are provided with grab handles, but there are no hand-straps. Bulkheads are replaced by three iron stanchions at each end. Windows are of the double-sash type, the upper sashes being stationary and the bottom sashes arranged to raise. The usual push-buttons are installed in the side posts. As well as the regulation platform gong, the car is provided with a compressed-air whistle supplied from the air brake reservoir.

Composite-Frame Cars for the Tri-City Railway Company

Davenport, Iowa

VERY recently the American Car Company completed delivery to the Tri-City Railway Company, Davenport, Iowa, of 35 composite frame, prepayment cars which differ in some respects from the type which has been regarded as the railway's standard. The bottom frame is composed of 4½ by 6¾-in. yellow pine side sills and 4¾ by 5 13-16-in. oak end sills, with four center crossings of 3 by 5⅛-in. oak.

Courtesy of Electric Railway Journal

COMPOSITE-FRAME CARS FOR IOWA. Operating in Iowa and Illinois, this street railway is under jurisdiction of Interstate Commerce Commission

These last are plated on one side with a 5 by ¼-in. steel plate, which is turned at the ends and bolted through the side sills. The weight of the body is supported on the Brill No. 51-E1 trucks by body bolsters of truss form, the members of which are formed by 9 by ¾-in. and 9 by 1-in. steel plates with cast-iron fillers. Additional strength is given the bottom frame by diagonal braces running from the end sills to the body bolsters. A steel plate 33 by 3-16 in., running the full length of the car body, acts not only as reinforcement for the side sill to which it is bolted, but as side sheathing. This plate terminates just below the window sill joint, where it is covered by a steel moulding running the full length of the car.

Platforms are supported on heavy steel angles and are enclosed in vestibules, which are covered outside and paneled inside below the windows with sheet steel. Vestibule and body doors are arranged for the prepayment system, the former consisting of two two-leaf folding doors, one hinged to the rear vestibule corner post, and the other to a post set in the center of the opening, and which, in conjunction with an iron pipe railing, divides the platform for entrance and exit purposes. Both doors, together with a folding step, are operated

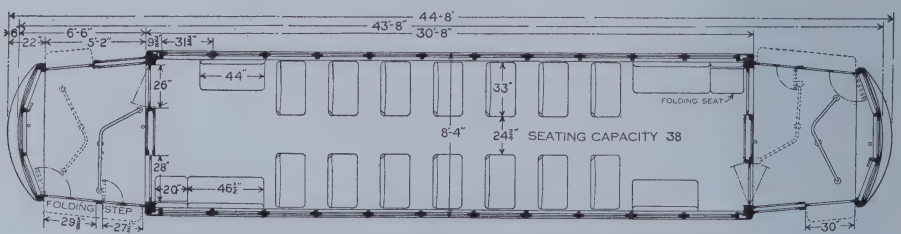
COMPOSITE-FRAME CARS FOR IOWA. The longitudinal seat at the left has a hinged section which covers the door at the forward end

COMPOSITE-FRAME CARS FOR IOWA. Folding entrance and exit doors are controlled by the conductor. Car photographed on temporary trucks

by the conductor by means of a lever mechanism. Passengers enter the car body through a two-way swing door, and depart through a door which slides into the center bulkhead. On the brakestaff side of the vestibule is a single sliding door, operated by a lever controlled by the motorman.

The body framing is of ash, with the posts so arranged that the bottom sashes of the windows may be dropped to clear the arm rail and the opening covered by a hinged cap. Steel carlines at each post, interspersed with ash carlines, support the monitor deck roof. The interior of the car is finished in quartered oak.

Some unusually interesting conditions prevail in connection with the Tri-City Railway Company. Operating in two States, Iowa and Illinois, this street railway not only comes under the jurisdiction of the Interstate Commerce Commission, but it serves a population of over one hundred thousand distributed in 10 cities and villages which are separated only by their respective corporation lines, as shown on the map which accompanies this article. It draws from a very rich agricultural territory and the cities and villages through which it runs contain large manufacturing interests. These include plow and wagon works which, to-



COMPOSITE-FRAME CARS FOR IOWA. Track to side sills, 31 in.; side sills to trolley boards, 8 ft. 6⅞ in.; floor to headlining, 7 ft. 7⅞ in. Track to step, 14 in.; step to platform, 13¾ in.; platform to floor, 10 in. Weight of body less electrical equipment, 20,000 lb.

gether with the shops of the Rock Island Railroad, employ several thousand men.

The railway also serves the Rock Island Arsenal, where 3,000 men are employed by the Government. This is situated on an island in the Mississippi River and is reached by means of the Government bridge connecting Davenport and Rock Island, which extends across the end of the island. In addition to its urban service, the company operates a high-speed interurban line between Davenport and Muscatine, Ia. It owns Watch Tower Park at Rock Island, and Prospect Park at Moline. Its lines reach several other parks and amusement resorts at various points.

Whether the motor bus is going to find a place in city and interurban transportation in the near future is problematical, but a good many railway managers are keeping close tabs on it.

Semi-Convertible Car Hit by an Engine

Portsmouth Railway & Light Company

ON October 9th at 6.20 P. M., note the time carefully, a semi-convertible, prepayment car built for the Portsmouth Railroad and Light Company, Portsmouth, Ohio, by the G. C. Kuhlman Car Company, was struck by a freight engine. The car was turned completely over and the engine was thrown off the track. At 4.30 P. M., October 12th, the car was back in service in as good condition as ever.

SEMI-CONVERTIBLE CAR HIT BY AN ENGINE. Three days after the accident this car was back in service as good as ever

When the accident occurred the full impact of the blow was received in the center of the car body. The only damage resulting to the car was one panel destroyed and several windows broken. Curiously enough, all of the damage occurred on the side opposite to that struck by the engine and was occasioned by the car turning over. Of 21 passengers on the car only five were hurt and their injuries were very slight, being caused by broken glass.

The car is one of a number built by the G. C. Kuhlman Car Company for the Portsmouth Company, and is the identical one shown in the illustration. The bottom framing is of composite construction, with 4 by 7¾-in. yellow pine side sills, reinforced with 6 by 3½ by ⅜-in. angles on the inside of the sill, with the lower flange under the sill, and also a 15 by ⅜-in. steel plate inside of the angle. Inside trusses of 2½ by ⅜-in. section are supported on the posts 23 in. from the floor and anchored under the end sills to aid in preventing deflection of the sills by the long platforms. The center sills and the crossings are 3½ by 4 7-16 in.; the end sills are 5¼ by 6⅞ in., reinforced by a 6 by ½-in. plate carried around the ends and bolted through the side sills. The platforms are supported on channel steel outside knees of open truss form and inside knees of 4 by 3 by ½-in. angles, which extend 3 ft. 10 in. back of the bolster.

At one time it was said that if motormen were given seats the number of accidents would mount up. Since it has become common practice to furnish motormen's seats it is said accidents have been thereby decreased.

Twenty-Six-Passenger Omnibus

New York State Railways

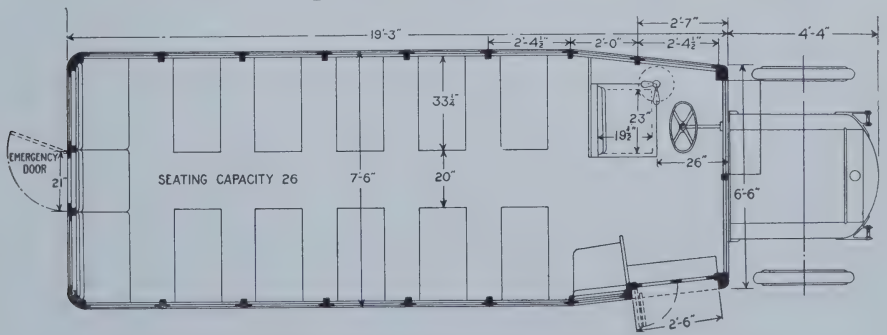
AS a feeder to trolley lines and as a means of transportation in sections not served by electric railways, the motor omnibus has no equal. A 26-passenger bus, built by The J. G. Brill Company for the Utica Lines of the New York State Railways, is being used for this purpose, and is at present in service along the New York State Highway between Utica and Sauquoit, a village about 10 miles distant. The conditions in this section are ideal for motor bus operation, as there are a number of important manufacturing establishments employing large numbers of hands in the district which, at present, is

TWENTY-SIX-PASSENGER OMNIBUS. Door and step arrangements obviate the necessity of a stairway well

wholly unsupplied with trolley service. Then, too, the condition of the State Highway permits good running time with none of the racking so common on the ordinary country road.

The bus just delivered is mounted on a special three-ton Mack chassis equipped with Westinghouse air springs at the front and rear. The underframe is formed of the usual side and end sills, properly reinforced, and has as its most interesting feature seven crossings formed of 3-in. channel steel, which are placed with the web in a vertical position, with ash crossings between on which the floor is laid. The use of 3-in. channels in this position reduces the weight of the underframe without taking from the strength.

Door and step arrangements are out of the ordinary in this type of vehicle, and permit the utilization of practically the full width of the floor. This is accomplished by



TWENTY-SIX-PASSENGER OMNIBUS. Roadway to side sills, 3 ft. 2¾ in.; side sills to roof, 7 ft. 2¾ in.; floor to headlining, 6 ft. 7¾ in. Roadway to bottom step, 18⅜ in.; bottom to top step, 13 in.; step to floor, 13 in. Weight of body, 3,750 lb.

means of a two-leaf folding door operated by a lever mechanism at the driver's left hand. This door closes against the edge of the top step tread and the lower step folds up even with the bottom edge of the door. The location of the driver's seat on the left-hand side of the bus, directly opposite to the at the aisle ends, together with the cushion supports and seat-back braces, are made of pressed steel in one piece. This method gives strength combined with light weight and facilitates cleaning. Curtains and fixtures, sanitary hand-straps, push-button signal system and seat-back grab-handles

Twenty-Six-Passenger Omnibus. An ash panel and iron stanchion separate the door from the first seat on the right-hand side

door, permits of one-man operation, a decided advantage in service of this character.

Standard trolley car practice is followed very closely in the interior fittings. The finish is of ash with maple veneer ceiling. There are 10 transverse seats of Brill manufacture, built without cross frames under the cushions. The pedestals are such as are used in regular trolley car equipment. A transverse seat running across the entire rear end of the bus, rattan upholstered like the others, has a removable center section which gives access to an emergency door.

There are two double sash windows in front, which are particularly interesting in that the lower

sashes are stationary while the upper sashes are hinged at the top to open outward. A glass hood, placed at the top of the lower sash in front of the driver, prevents rain or snow from obscuring the section of glass in the line of his vision. All of the side windows have stationary upper sashes, but the lower sashes are arranged to raise. Ventilation is further provided for by four slat ventilators placed two on each side. A single electric headlight is placed under the front projection of the plain arch roof. A row of electric lamps set on either side of the ceiling provide for illumination at night. The bus is heated from the exhaust of the engine.

An interesting improvement to the Brill No. 39-E truck is fully described in the new Brill Truck Catalog, No. 206.

Three Construction Cars for Spain

Cataluña Tramways Company

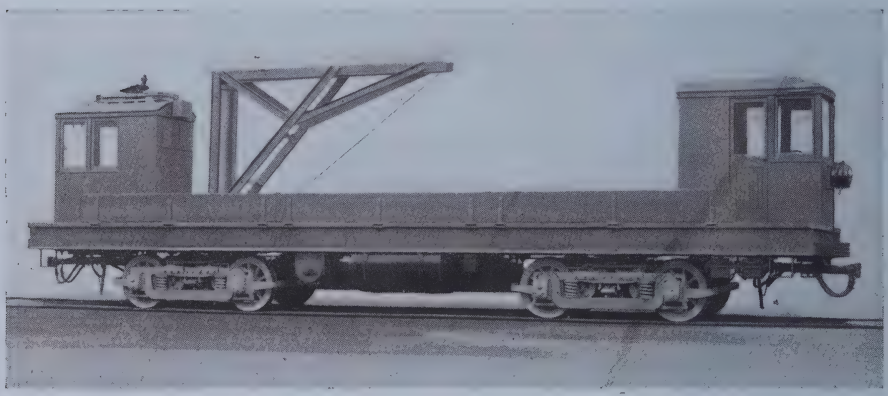
SOME very interesting construction problems confront the Cataluña Tramways Company and three construction cars recently shipped to the company at Barcelona, Spain, by The J. G. Brill Company through the Pearson Engineering Corporation, Ltd., will have hard service almost from the moment they are placed on the rails. The railway is primarily an interurban operating out of Barcelona. At present cars are being operated over an eight-mile stretch from Barcelona to Sarria in the Province of Cataluña. Eventually the system will embrace about 22 miles of double and single track, reaching Sabadell, to the west of Barcelona. The completion of its lines will give the company an interurban territory having a number of small towns between termini, with anywhere from fifty to seventy-five thousand population to draw from.

Before this is accomplished, however, there are four tunnels, the longest being about a mile and a quarter, to be driven through spurs of the Pyrenees and numerous cuts and fills to be made. The country covered by the railway is extremely hilly with an average grade of 4.1 per cent. At one point a funicular runs from the main line up to Mont Vallio, a popular mountain resort.

The three cars recently shipped by The J. G. Brill Company are to be used in connection with the construction work and for hauling cars of earth and rock from the

tunnel borings. They are powerful pieces of rolling stock, each having a normal carrying capacity of 50,000 pounds, with the center of the car figured out to support a concentrated load of 15 tons distributed over an area approximately 9 ft. square. The underframing is built up of steel plates and structural shapes, connected by suitable angles. The side and end sills are formed of 15-in. channels connected by gussets. Two center stringers, also of 15-in. channels, run from end sill to end sill. Crossings are 6-in. channels. Yellow pine nailing strips bolted to the frame carry the double floor of 1¾-in. and ⅞-in. yellow pine. Bolsters built up of 15-in. channels support the body on Brill high-speed trucks.

Gondola sides, 18 in. high and in three sections, are hinged at the bottom and arranged to drop outwardly. There are also four stake sockets on each side. A cab at each end has one window in front and three on the left-hand side. The right-hand side carries the door and two windows. The fronts of the cabs below the window sill are covered with sheet steel, and the backs are heavily plated to prevent damage from the load. One cab is fitted with a pantograph trolley, while the other carries the ordinary installation. Each car is equipped with a crane hoist of ample capacity.



CONSTRUCTION CARS FOR SPAIN. Length over bumpers, 46 ft. Width over sills, 9 ft. Track to side sills, 3 ft. 1½ in.; track to floor, 4 ft. 7⅛ in.; floor to trolley board, 7 ft. 2⅜ in. Track to step, 25 in.; step to floor, 30⅛ in. Weight of body, less electrical equipment, but including cranes and air equipment, 34,300 lb.

Construction cars, with and without cranes, combination tower and construction cars, multiple dump cars, sand, coal and ash cars appear to be profitable investments in many quarters.

DING, ATLANTIC CITY, 1913

MAIN HALL, CONVENTION BUILDING, ATLANTIC CITY, 1913

Three views of the Brill space and exhibit at the recent Atlantic City Convention. In the daytime, the space was a gathering point for railway men from all parts of the country. During the evening entertainments it was used as headquarters by the officers of the American Electric Railway Association and the American Electric Railway Manufacturers' Association. On the reverse is a general view of the Main Hall of the Convention Building taken from the balcony over the main entrance.

MAIN HALL, CONVENTION BU

City and Interurban Cars for the Wilkes-Barre Railway

Brill Semi-Convertible Type

WITHIN a comparatively short time, The J. G. Brill Company completed the delivery to the Wilkes-Barre Railway Company of 10 motor cars, six of which are intended for use on the railway's interurban lines, while the remainder are for city service. Both types embody all of the Brill Semi-Convertible Window features and have plain arch roofs provided with Brill "Exhaust" Ventilators. The interior finish of all cars is cherry.

The interurban cars have powerfully constructed underframes with side sills formed of 18 by 5-16-in. steel plates, reinforced at the top by a 3 by ½-in. plate and at the bottom by a 2½ by 2½ by ½-in. angle. End sills are 10-in. channels. The crossings are built up in the form of an open truss, the

CITY AND INTERURBAN CARS FOR WILKES-BARRE. The Brill Semi-Convertible Window System adds much to the brightness of the interior

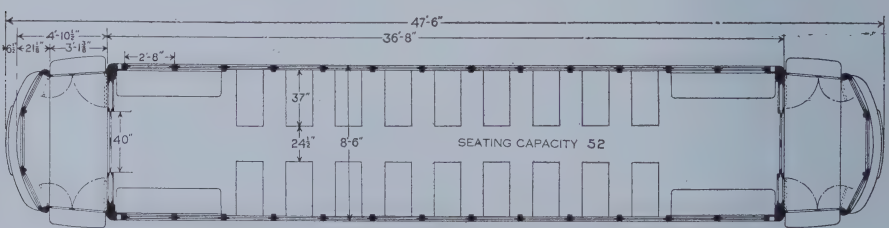
CITY AND INTERURBAN CARS FOR WILKES-BARRE. The cars for interurban service are mounted on Brill No. 27-MCB2x trucks

top chord being a 4-in. channel, while the bottom member is formed of a 4 by 3/8-in. steel plate. These are dropped to pass under the center stringers of 4-in. channels. In addition to the truss-form crossings, there are two crossings of 5-in. channel which extend the full width of the car between side sills.

Platforms are supported on center knees of 5-in. channel steel extending from end sills to bumpers, and, in addition, there are two skeleton knees made up of 4-in. channels arranged to form a truss support. The platforms are enclosed in vestibules provided with folding doors built in two sections. The section hinged to the body corner post is used as an exit and is larger than the other section, which is hinged to the vestibule corner post.

The body framing is of ash with straight corner and side posts, the former being 3 5/8 in. and the latter 3 1/4 in. thick. To these is bolted the side sheathing of 3-16-in steel plate, which is carried around the corner posts to form the body end panels. The bulkheads at each end of the car are provided with independently operated, double, sliding doors.

Like the interurbans, the city cars are provided with Brill "Winner" Reversible Seats upholstered in twill-woven rattan, "Dumpit"



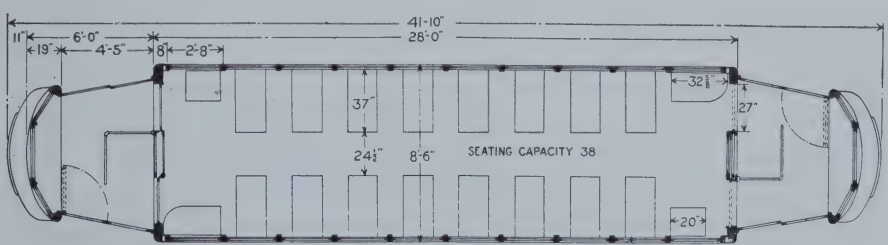
CITY AND INTERURBAN CARS FOR WILKES-BARRE. Track to side sill, 2 ft. 11⅝ in.; side sill to trolley board, 8 ft. 7⅝ in.; floor to headlining, 7 ft. 7⅝ in. Track to step, 18⅝ in.; step to platform, 15⅞ in.; platform to floor, 9 in. Weight of body, less electrical equipment, 28,000 lb.

CITY AND INTERURBAN CARS FOR WILKES-BARRE. City cars are mounted on trucks of the Brill No. 39-E type, with 4 ft. 6 in. wheelbase

Sand Boxes and platform gongs and signal bells of Brill manufacture. Both types have a 9-inch wire screen running the full length of the car above the belt rail. Aisle and seat width, in addition to that permitted by the Brill Semi-Convertible Window System, is gained by the elimination of wall-pedestals, the wall ends of the transverse seats being supported on angles riveted to the side plates.

Although the city car bodies are shorter than the interurbans, the platforms are longer and are arranged for the prepayment system of fare collection by means of iron pipe posts and railings. The door system also is different. At each end of the car body are single entrance and exit doors which slide together into a center bulkhead. Vestibule doors on the controller side are of the two-leaf, folding type, controlled by a lever operated by the conductor. On the brakestaff side is a single sliding door operated by a pedal device. The underframing of these cars is built up of steel plates and structural shapes. Corner and side posts are of ash and poplar side panels are covered with a 3-16-in. steel sheathing.

In addition to its own system, the Wilkes-Barre Railway Company leases and operates the Wilkes-Barre and Wyoming Val-



CITY AND INTERURBAN CARS FOR WILKES-BARRE. Track to side sills, 2 ft. 8 in.; side sills to trolley board, 8 ft. 8⅜ in.; floor to headlining, 7 ft. 8¼ in. Track to step, 16 9/16 in.; step to platform, 14½ in.; platform to floor, 8¼ in. Weight of body less electrical equipment, 17,665 lb.

ley Traction Company and its subsidiaries. The system comprises 100 miles or more of track and, outside of the city limits, the cars are operated for a considerable distance over a private right-of-way, where it is possible for a speed of from 25 to 30 miles an hour to be maintained. The country traversed by the company's lines is hilly, but in spite of this the grades are not severe. On what is known as the Harvey's Lake Division there is a steady climb of 12 miles to an altitude of 1,450 feet. The altitude of the city is 550 feet at the central part. The lake has a circumference of about 90 miles and is the largest body of fresh water in the State of Pennsylvania. The railway draws its patronage from a population of somewhat over 300,000. The company controls Fernbrook and Sans Souci Parks.

CITY AND INTERURBAN CARS FOR WILKES-BARRE. City cars have accommodations for 38 passengers on 16 transverse and four longitudinal seats

The invention that is in wider use than any connected with car construction is the Brill Semi-Convertible Window System.

Milk Car for Philadelphia Service

Philadelphia Rapid Transit Company

THE Philadelphia Rapid Transit Company recently placed in service an interesting type of milk car, built by The J. G. Brill Company. The car makes daily trips between Philadelphia and the dairy districts to the north.

Arranged for two-way operation, the car has a length over corner posts of 36 ft., with platforms 4 ft. long, enclosed in vestibules. These are fitted at each side with a single door hinged to the corner posts. Two bulkheads form a passageway at the center and divide the car into two compartments. In the center of each bulkhead is a single sliding door opening onto the center passageway. The car is fitted with a cooling apparatus, consisting of a 2 ft. 3 in. by 3 ft. 8-in. brine tank, ice chest and the necessary fan, motor and piping. Along either side of each compartment are sectional tables for carrying milk cans. These tables are hinged to the sides of the car, and, when lowered into position, rest on pipe supports set into floor sockets. Along the outer edge of each table is a T-iron, with one leg projecting toward the aisle, to act as a support for shelving placed across the aisle. The floor is insulated with mineral wool and covered with galvanized iron.

Side sills are formed of 5¼ in. by 8-in. yellow pine, reinforced on the inner side by 8-in. channels. The end sills consist of 8-in. channels. There are four center sills formed of 7-in. I-beams running from end sill to end sill. Crossings consist of 4-in. I-beams, with 6 by 6 hy

Milk Car for Philadelphia Service. Motor for operating fan is suspended above folding tables

MILK CAR FOR PHILADELPHIA. Track to side sill, 3 ft. $\frac{15}{16}$ in.; s de sill to trolley-board, 8 ft. $8\frac{7}{8}$ in.; floor to headlining, 7 ft. $8\frac{5}{8}$ in. Track to step, $24\frac{1}{2}$ in.; step to floor, $2\frac{7}{16}$ in. Weight of body, less electrical equipment, but including cooling apparatus, 33,340 lb.

$\frac{3}{8}$-in. angles at the ends, turned and bolted to the side sills. Body bolsters are built up in truss form. Bolster crossings are 6-in. channels. The car is mounted on Brill No. 50-E2 diamond frame trucks with large diameter coil springs which cushion any side sway.

MILK CAR FOR PHILADELPHIA SERVICE. When not in use, the tables can be folded up against the sides of the car

Interurban Combination Cars

New York State Railways

FOUR combination passenger and smoking cars were recently delivered by the G. C. Kuhlman Car Company to the New York State Railways for interurban service on the Utica Lines. The interior of the cars is handsomely finished in African mahogany, with rubber tiled floor. All transverse seats are of the reversible type, and those in the main compartment are upholstered in plush of the railway company's standard pattern, while those in the smoking compartment are covered with leather.

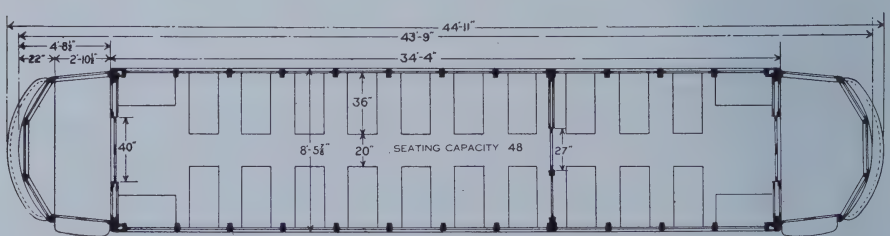
The underframing is entirely of steel, with the side sills formed of 16 by ⅜-in. plates. These are reinforced at the top edge by a 2 by ½-in. steel bar and at the bottom edge by a 2½ by 2 by 5-16-in. angle. There are three intermediate sills formed of 2½ by 2½ by ⅜-in. T-bars, which are stopped off at each side of the body bolsters to which they are bolted by means of gusset plates bent to shape. This is done in order that

INTERURBAN COMBINATION CARS. African mahogany finish with rubber-tiled floor and bronze fittings make a very handsome interior

INTERURBAN COMBINATION CARS. Brill No. 27-MCB2x trucks on which this car is mounted are built for high-speed motor service

the bolster may be removed in case of necessity without cutting the sills. The bumper construction is interesting. Each bumper is made up of a 6 by 3½ by ⅜-in. angle, bent to shape in one continuous piece. On the closed side of the platform, this is extended back under the sill plate angle, to which it is bolted. On the open side it is secured to the side knee by means of connection angles, which are also used to secure the intermediate sills to the bumpers. Posts and carlines are formed of T-bars, which are bent to shape in one continuous piece. The car has a plain arch roof which is provided with Brill "Exhaust" Ventilators, and which is supported on ash rafters set two between each post.

Vestibules have stationary steps and two-leaf folding doors; in one vestibule is installed a hot water heater. There are mutually operating, double, sliding doors in the bulkheads at each end of the car and a single sliding door in the partition separating the main and smoking compartments. This partition is glazed in the upper part and paneled below, as are the bulkheads and doors, thus affording a clear view the full length of the car. Windows have stationary upper sashes and lower sashes arranged to raise.



INTERURBAN COMBINATION CARS. Track to side sill, 83¼ in.; side sill to trolley board, 9 ft. 2 13/16 in.; floor to headlining, 8 ft. Track to step, 17¼ in.; step to platform, 16 in.; platform to floor, 9 in. Weight of body, less electrical equipment, but including 1280-lb. heater, 21,380 lb.

Closed Cars for South Carolina

Brill No. 21-E Trucks

THE South Carolina Light, Power and Railway Company, Spartanburg, S. C., has placed in service a number of closed vestibule cars, recently delivered by the American Car Company. The railway company operates over about 20 miles of city and interurban track, and draws its patronage from a population of about 20,000. In addition the company does all of the electric light and power and gas business in Spartanburg. It maintains a car house and repair shops at East Spartanburg, and a hydro-electric plant on the Broad River.

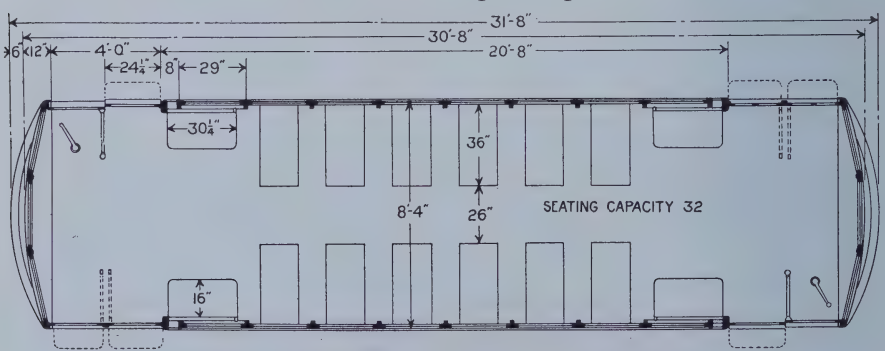
A number of the characteristics of the type built by the American Car Company for Muskogee, Okla., are embodied in the new Spartanburg cars. There are no bulkheads or doors in the car body, and this feature, together with the plain arch roof and the elimination of heavy platform knees by the use of flush platforms, results in a considerable saving of weight. There are no openings in the roof, but

CLOSED CARS FOR SOUTH CAROLINA. The straight sides and absence of bulkheads add greatly to the roominess of the car

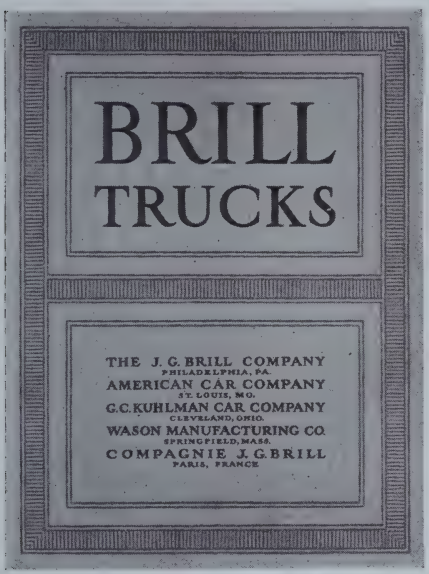
CLOSED CARS FOR SOUTH CAROLINA. The continuous framing of the upper window sashes adds to the strength of construction

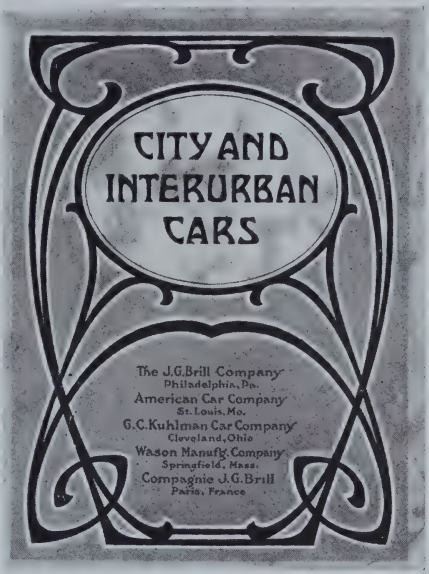
suitable ventilators are installed in the side sills. Vestibules have, on the brakestaff side, a single door, which is arranged to slide from the body corner post toward the vestibule corner post, and is operated by means of a lever controlled by the motorman. This door is for use as a front exit and is provided with a folding step. On the controller side there are two single-leaf, pivotal doors, operated in conjunction with folding steps by means of a lever mechanism controlled by the conductor. Vestibules are sheathed with sheet steel below the window sills, and have three double-sash windows.

The underframing is made up of 3½ by 7¾-in. yellow pine side sills, plated on one side with a 12 by ⅜-in. steel plate, and end sills and crossings of 2½ by 4 1-16-in. oak. Corner posts are 2½ in. and side posts 1½ in. thick. The sides are straight and are sheathed with insulated sheet steel, applied in sections between each pair of posts. Inside the car is finished in ash. Brill "Winner" seats are used, with ash slat seats and square spindle backs.



CLOSED CARS FOR SOUTH CAROLINA. Track to side sill, 24¼ in.; side sill to trolley board, 8 ft. 11½ in.; floor to headlining, 8 ft. Track to step, 17 in.; step to floor, 14¼ in. Estimated weight of body, less electrical equipment, 8000 lb.





Three New Brill Catalogs

THE three new Brill catalogs, the front covers of which are reproduced on this page, were given their initial distribution at the recent A.E.R.A. Convention at Atlantic City. The Truck Catalog, No. 206, contains many illustrations and full descriptions of the principal members of the Brill Truck family and will be of great assistance to the truck buyer. The General Car Catalog, No. 207, is beyond doubt the most complete publication of its kind ever issued. It contains illustrations of 86 different types of city and interurban passenger cars as well as many types of funeral, baggage, freight and service cars. The illustrations are accompanied by floor plans showing seating arrangements and by dimensions and weights. The Motor Omnibus Catalog, No. 208, is unique. Exterior and interior views and floor plans of eleven different types of passenger buses and a funeral bus are shown, together with complete dimensions and descriptive matter. The catalogs will be sent on request to anyone interested in the subjects covered. Please address the Publicity Department.

SUGGESTIVE SUBJECTS

Note.—The purpose of these last pages is to supply executive officers with material suggestions—ideas that may prove useful in preparing their printed matter and placards, also pay-envelope stuffers, magazine material for employees, heart-to-heart talks in letters and in literature. For such purposes the copyright is waived.

In the last analysis, work properly done requires less time and effort than work improperly done. Moreover, it leads somewhere. For the man, be he laborer with a track-laying gang, or superintendent, who accomplishes his allotted task in a proper manner, has time and ability to reach out for the things beyond. And the opportunities with a railway organization are past counting.

Conservation of energy is one of the surest methods of attaining efficiency. That man counts who can so systematize his own work that the relatively unimportant tasks can be delegated to someone below him, in order that he may have time to study methods and to relieve the man above him of some of his work. The man who has so much to do in his own position that he cannot make room for other and higher work, is not employing his time and efforts to the best advantage.

There is no position or office in a street railway organization that cannot be attained by any normal-minded man connected with that organization, provided that man is earnest and steadfast in his efforts to advance. Every corporation, every business organization in the country is constantly on the lookout for quality in labor, whether in the shops or the executive offices. The day has gone when "good enough" will do. It is the best that is wanted. And the man who proves himself the best in his line cannot be kept down.

Coming in direct personal contact with the public—the company's only customer—motormen and conductors are in a position to work for the permanent good or the incalculable harm of the company. And the reward for good or bad service is certain. The motorman or conductor, or, in fact, any employee who, constantly alert in the company's service, attends properly to his health, appearance and observance of rules, who combines courtesy with common sense, who employs his off hours in studying and fitting himself for a higher position, is the man who stands out among the hundreds of employees; is the man who will attain that for which he is working.

Suggested Car Advertisements

It is the endeavor of this company to keep its cars as clean as possible. Your help to this end will be appreciated.

This company's transfer system is fully explained on the back of each transfer. Passengers desiring transfers are requested to obtain them from the conductor at the time of paying fare.

By concluding her shopping early, the woman who has been sitting in front of the counter may avoid occupying the seat of the girl who has been standing behind the counter all day.

For every seat occupied by a shopper during the rush-hours, some tired sales-girl or business man has to stand. Do your shopping early. It will be much easier for you and for others.

Christmas shopping is wearying alike to buyers and sellers. Do your part to relieve the strain on yourself and others by concluding your shopping and returning home on an early car.

It is the aim of this company to provide comfortable service for all. Shoppers can be of great assistance to us and at the same time avoid personal discomfort by returning home before the evening rush-hours.

In order not to inconvenience passengers entering or leaving the cars, baggage, bundles, etc., cannot be carried on platforms, nor can the company undertake to carry packages large enough to interfere with the comfort of passengers.

Municipal ordinances prescribe the number of car ventilators to be open under varying weather conditions. The conductor has no discretion in the matter.

Efficient street railway service is one of the best advertisements a city can have. This company is endeavoring to advertise Blankville, and will appreciate helpful suggestions toward improving its service.

Passengers will add to their own comfort and greatly facilitate the service by passing well into the car away from the doorways.

By pressing the signal button at least half a block from the point where they wish to alight, passengers will afford themselves ample time to leave the car with comfort and safety.

Health and Appearance

THE man who attends well to his personal appearance, who keeps himself and his clothing clean, who preserves his health by eating proper food and securing enough sleep, is the man who has the energy and determination to succeed. A worn suit will harm nobody, but an untidy appearance and an unclean body and mind are inexcusable.

To Railway Managers

INQUIRIES regarding the matter published on the three last pages of BRILL MAGAZINE impel the direction of attention to the note published at the head of page 350. It is the intention of the publishers that railway managers be invited to make such use of any of the material as they desire, without regard to the general copyright.

The Christmas Peak

THE time is rapidly approaching when cars will be filled at all hours with Christmas shoppers. Most of them will be women and many of them will carry bundles, which will add to the general discomfort. Passengers will be tired, irritable and impatient. It is at such trying times that courtesy and never-failing patience on the part of motormen and conductors is especially necessary.

The A. E. R. A. Convention

THREE excellent views of the Brill Exhibit at the recent Atlantic City Convention of the American Electric Railway Association, together with a general view of the Main Convention Building, are published as a supplement to this issue of BRILL MAGAZINE. That each succeeding Convention will surpass all preceding gatherings in point of attendance and general interest has come to be regarded so much as a matter of course that comment on this subject is unnecessary.

The space occupied by the Brill Exhibit was one of the most prominent in the building, and the continuation of the pleasant custom of preceding years of making this place a rendezvous, not only during the day, but during the evening entertainments as well, was a source of extreme gratification to the Company. The space was used during the evening as headquarters for the officers of the American Electric Railway Association and the American Electric Railway Manufacturers' Association. It was also very pleasing to note the general interest displayed in the various types of Brill Trucks and the numerous Brill Specialties included in the Exhibit.

The J. G. Brill Company

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London Office: 110 Cannon Street, E.C.
Cable Address: "AXLES," London

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G. C. Kuhlman Car Co., Cleveland, Ohio
John Stephenson Co., Elizabeth, N. J.
Wason Manuf'g Co., Springfield, Mass.

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Agencies

Pacific Coast	Pierson, Roeding & Co., 118 New Montgomery St., San Francisco; Los Angeles, Portland, Seattle
Australasia	Noyes Brothers, Melbourne, Sidney, Dunedin, Brisbane, Perth
Belgium & Holland	C. Dubbelman, 24 Place de Louvain, Brussels
Argentine & Uruguay	Federico H. Bagge, Calle San Martin 201, Buenos Aires
Natal, Transvaal & Orange River Colony	Thomas Barlow & Sons, Durban, Natal
China	Shewan, Tomes & Co. Hong Kong, Canton, Shanghai
Italy	Giovanni Checchetti Piazza Sicilia, 1, Milan

If you change your address

write the new address on the envelope in which this magazine is received and return the envelope to the Publicity Department, The J. G. Brill Company.

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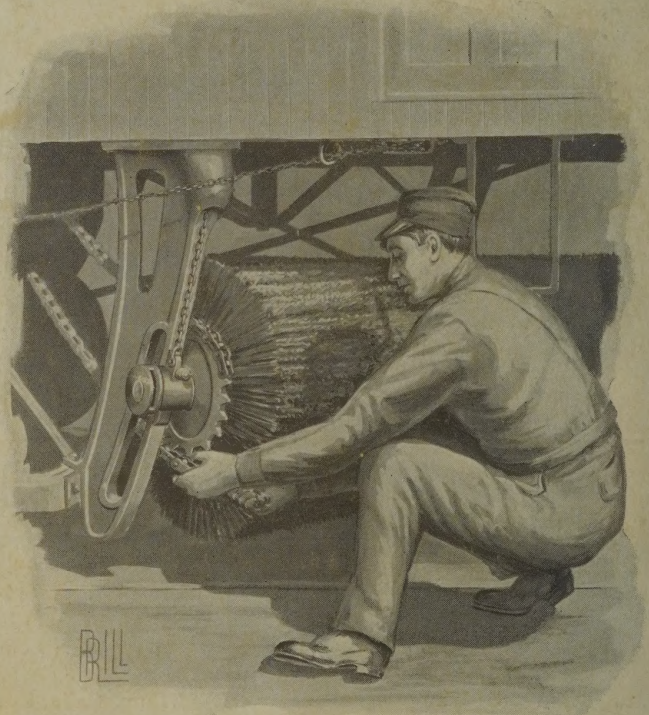

BRILL SWEEPER CHAINS are made for heavy work. They have malleable rollers and drop-forged links made in dies which prevents the slightest variation. They are carried in stock and can be shipped immediately upon receipt of order.

THE J. G. BRILL COMPANY
PHILADELPHIA, PENNSYLVANIA